IN THE CLAIMS

1. (Currently Amended) A method to receive a code division multiple access (CDMA) signal from a radio channel, comprising:

inputting a CDMA signal received through the radio channel to a searcher; and

processing the received signal in the searcher~~, at least partially via deconvolution,~~ to obtain a multi-path profile of the radio channel, where processing comprises at least partially removing an effect of at least one of a transmit filter or a receive filter on the multi-path profile, where at least partially removing comprises passing the received CDMA signal through a filter selected to have a filter characteristic that approximates an inverted amplitude or power response of the at least one of the transmit filter or the receive filter.

2. (Original) A method as in claim 1, further comprising outputting the multi-path profile to a controller for use in making demodulator finger assignments.

3. (Canceled)

4. (Previously Presented) A method to receive a code division multiple access (CDMA) signal from a radio channel, comprising:

inputting a CDMA signal received through the radio channel to a searcher; and

processing the received signal in the searcher to obtain a multi-path profile of the radio channel, where processing comprises at least partially removing an effect of at least one of a transmit filter or a receive filter on the multi-path profile, wherein said at least partially removing comprises passing the received CDMA signal through a processing unit that uses a least squares criterion to derive the radio channel multi-path profile x from a

searcher profile **y**, where $\mathbf{y} = \mathbf{F} \cdot \mathbf{x} + \mathbf{v}$, where **v** is a noise vector and **F** is a transmit/receive matrix.

5. (Original) A method as in claim 4, where vector **x** is derived as $\mathbf{x}=(\mathbf{F}^{\mathbf{T}} \cdot \mathbf{F})^{-1} \cdot \mathbf{F}^{\mathbf{T}} \cdot \mathbf{y}$, where **T** denotes a transpose operation and **-1** denotes an inverse matrix operation.

6. (Original) A method as in claim 5, further comprising adding a pre-whitening term to stabilize the inverse as $\mathbf{x}=(\mathbf{F}^{\mathbf{T}} \cdot \mathbf{F} + \mathbf{epsilon} \cdot \mathbf{I})^{-1} \cdot \mathbf{F}^{\mathbf{T}} \cdot \mathbf{y}$.

7. (Original) A method as in claim 4, using L1 norm instead of L2 norm in the least squares derivation.

8. (Original) A method as in claim 1, where at least partially removing is performed by searcher hardware.

9. (Original) A method as in claim 1, where at least partially removing is performed by a data processor that is external to the searcher.

10. (Currently Amended) Apparatus to receive a code division multiple access (CDMA) signal from a radio channel, comprising:

a receiver front end for receiving a CDMA signal from the radio channel; said receiver front end comprising at least one receiver filter; and

a deconvolution searcher block having an input coupled to an output of the receiver front end for inputting a received signal and an output for outputting a digital representation of a radio channel multi-path profile to a control function, said deconvolution

searcher block comprising a unit ~~for processing~~configured to process the received signal to at least partially remove an effect of at least said receiver filter on the multi-path profile, the unit comprising a filter having a filter characteristic that approximates an inverted amplitude response of at least said receiver filter.

11. (Original) Apparatus as in claim 10, where said unit for processing the received signal also at least partially removes an effect of a transmitter filter on the multi-path profile.

12. (Previously Presented) Apparatus as in claim 11, where said receiver is located at a mobile station, and where a transmitter comprising said transmitter filter is located at a base station.

13. (Previously Presented) Apparatus as in claim 11, where said receiver is located at a base station, and where a transmitter comprising said transmitter filter is located at a mobile station.

14. (Original) Apparatus as in claim 10, where said control function uses the multi-path profile when making demodulator finger assignments.

15. (Canceled)

16. (Previously Presented) Apparatus as in claim 11, where said unit of said deconvolution searcher block comprises a filter having a filter characteristic that approximates an inverted response of said receiver filter and said transmitter filter.

17. (Previously Presented) Apparatus to receive a code division multiple access (CDMA) signal from a radio channel, comprising:

a receiver front end for receiving a CDMA signal from the radio channel; said receiver front end comprising at least one receiver filter; and

a deconvolution searcher block having an input coupled to an output of the receiver front end for inputting a received signal and an output for outputting a digital representation of a radio channel multi-path profile to a control function, said deconvolution searcher block comprising a unit for processing the received signal to at least partially remove an effect of at least said receiver filter on the multi-path profile, where said unit for processing the received signal also at least partially removes an effect of a transmitter filter on the multi-path profile, and where said unit of said deconvolution searcher block comprises a processing unit that uses a least squares criterion to derive the radio channel multi-path profile **x** from a searcher profile **y**, where $\mathbf{y} = \mathbf{F} \cdot \mathbf{x} + \mathbf{v}$, where **v** is a noise vector and **F** is a transmit/receive matrix.

18. (Original) Apparatus as in claim 17, where vector **x** is derived as $\mathbf{x}=(\mathbf{F}^{\mathbf{T}} \cdot \mathbf{F})^{-1} \cdot \mathbf{F}^{\mathbf{T}} \cdot \mathbf{y}$, where **T** denotes a transpose operation and **-1** denotes an inverse matrix operation.

19. (Original) Apparatus as in claim 18, further comprising adding a pre-whitening term to stabilize the inverse as $\mathbf{x}=(\mathbf{F}^{\mathbf{T}} \cdot \mathbf{F} + \mathbf{epsilon} \cdot \mathbf{I})^{-1} \cdot \mathbf{F}^{\mathbf{T}} \cdot \mathbf{y}$.

20. (Original) Apparatus as in claim 17, using L1 norm instead of L2 norm in the least squares derivation.

21. (Currently Amended) A mobile station having a receiver adapted to receive a code division multiple access (CDMA) signal from a radio channel, the receiver comprising a

receiver front end for receiving the CDMA signal from the radio channel, said receiver front end comprising at least one receiver filter, said receiver further comprising a searcher having an input coupled to an output of the receiver front end for inputting a received signal and having an output for outputting a digital representation of a radio channel multi-path profile to a mobile station control function, said mobile station comprising a unit to at least partially remove, at least partially via deconvolution, an effect of at least said receiver filter on the multi-path profile, where said unit comprises a filter having a filter characteristic that approximates an inverted response of at least said mobile station receiver filter.

22. (Original) A mobile station as in claim 21, where said unit also at least partially removes an effect of a base station transmitter filter on the multi-path profile.

23. (Original) A mobile station as in claim 21, where said control function uses the multi-path profile when making demodulator finger assignments.

24. (Canceled)

25. (Original) A mobile station as in claim 22, where said unit comprises a filter having a filter characteristic that approximates an inverted amplitude or power response of said mobile station receiver filter and said base station transmitter filter.

26. (Previously Presented) A mobile station having a receiver adapted to receive a code division multiple access (CDMA) signal from a radio channel, the receiver comprising a receiver front end for receiving the CDMA signal from the radio channel, said receiver front end comprising at least one receiver filter, said receiver further comprising a searcher having an input coupled to an output of the receiver front end for inputting a received signal and

having an output for outputting a digital representation of a radio channel multi-path profile to a mobile station control function, said mobile station comprising a unit to at least partially remove, at least partially via deconvolution, an effect of at least said receiver filter on the multi-path profile, and where said unit comprises a processor that uses a least squares criterion to derive the radio channel multi-path profile **x** from a searcher profile **y**, where $\mathbf{y} = \mathbf{F} \cdot \mathbf{x} + \mathbf{v}$, where **v** is a noise vector and **F** is a transmit/receive matrix.

27. (Original) A mobile station as in claim 26, where vector **x** is derived as $\mathbf{x}=(\mathbf{F}^{\mathbf{T}} \cdot \mathbf{F})^{-1} \cdot \mathbf{F}^{\mathbf{T}} \cdot \mathbf{y}$, where **T** denotes a transpose operation and **-1** denotes an inverse matrix operation.

28. (Original) A mobile station as in claim 27, further comprising adding a pre-whitening term to stabilize the inverse as $\mathbf{x}=(\mathbf{F}^{\mathbf{T}} \cdot \mathbf{F} + \mathbf{epsilon} \cdot \mathbf{I})^{-1} \cdot \mathbf{F}^{\mathbf{T}} \cdot \mathbf{y}$.

29. (Original) A mobile station as in claim 26, using L1 norm instead of L2 norm in the least squares derivation.

30. (Original) A mobile station as in claim 22, where said unit is implemented in searcher hardware.

31. (Original) A mobile station as in claim 22, where said unit is implemented in control function software.

32. (Previously Presented) In a mobile station, a method to reduce an amount of data provided to a finger assignment algorithm, comprising:

inputting a CDMA signal received through a radio channel to a searcher; and

processing the received signal in the searcher to generate output data for the finger assignment algorithm that represents a multi-path profile of the radio channel, where processing comprises passing the received CDMA signal through a filter selected to have a filter characteristic that approximates an inverted response of at least one of a base station transmit filter or at least one mobile station receive filter so as to reduce an occurrence of multi-path sidelobes in the output data.

33. (Original) In a mobile station, a method to reduce an amount of data provided to a finger assignment algorithm, comprising:

inputting a CDMA signal received through a radio channel to a searcher; and

processing the received signal in the searcher to generate output data for the finger assignment algorithm that represents a multi-path profile of the radio channel, where processing comprises passing the received CDMA signal through a processor unit that operates in accordance with a least squares criterion to derive the radio channel multi-path profile **x** from a searcher profile **y**, where $\mathbf{y} = \mathbf{F} \cdot \mathbf{x} + \mathbf{v}$, where **v** is a noise vector and **F** is a transmit/receive matrix, so as to reduce an occurrence of multi-path sidelobes in the output data.

34. (Currently Amended) Circuitry, comprising:

a searcher having an input configured to receive a code division multiple access (CDMA) signal from a receiver front end, the searcher also having an output configured to output a digital representation of a radio channel multi-path profile of the received CDMA signal, said searcher comprising a deconvolution processing block configured to process the received CDMA signal to at least partially remove an effect of at least a receiver filter in the receiver front end on the multi-path profile, the deconvolution

processing block comprising a filter having a filter characteristic that approximates an inverted amplitude response of at least said receiver filter.

35. (Previously Presented) Circuitry as in claim ~~35~~34, where said deconvolution processing block is also configured to process the received CDMA signal to at least partially remove an effect of a transmitter filter on the multi-path profile.

36. (Previously Presented) Circuitry as in claim ~~35~~34, where said circuitry is an integrated circuit.

37. (New) Circuitry as in claim 35, where the filter has a filter characteristic that approximates an inverted response of said receiver filter and said transmitter filter.

38. (New) A method as in claim 1, where the filter is selected to have a filter characteristic that approximates an inverted amplitude or power response of the transmit filter and the receive filter.